

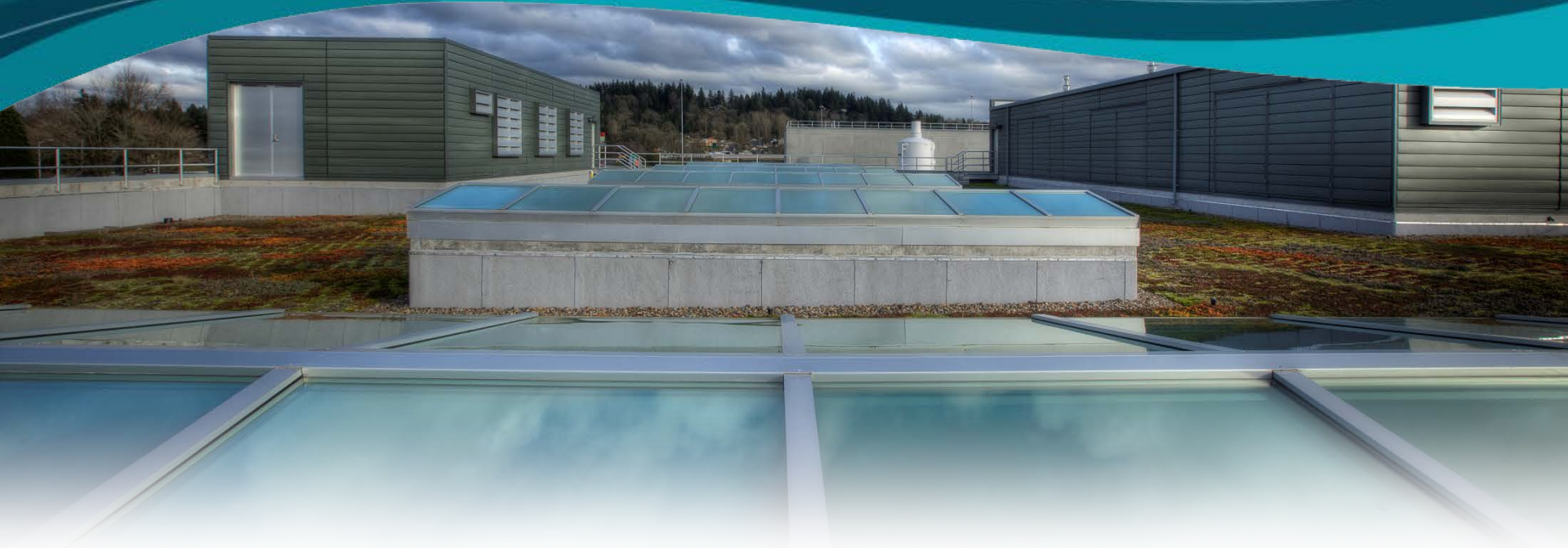
Clackamas County

Water Environment Services

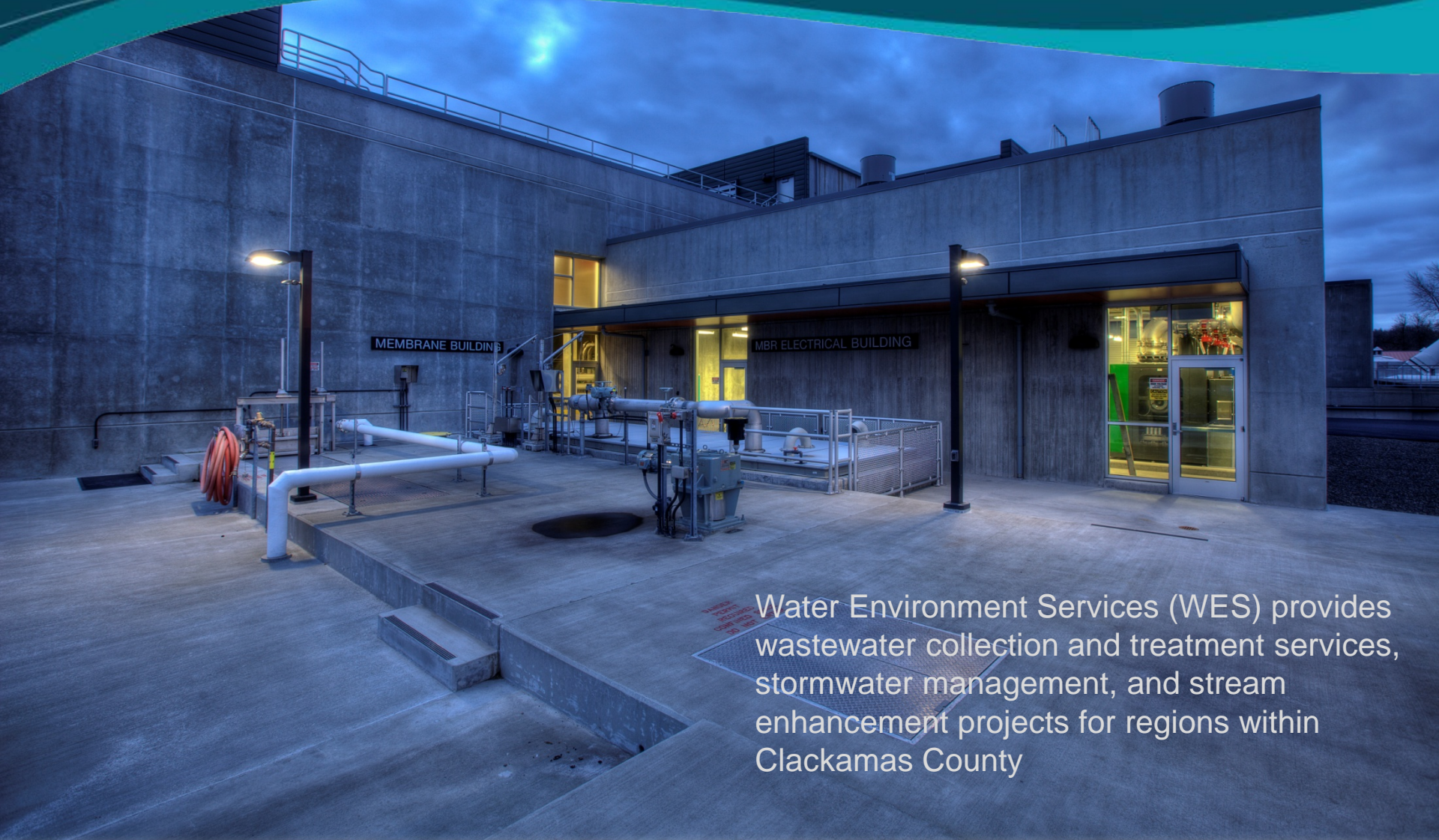
Cultivating Comprehensive Water Education
Through Community Partnerships



Who we are

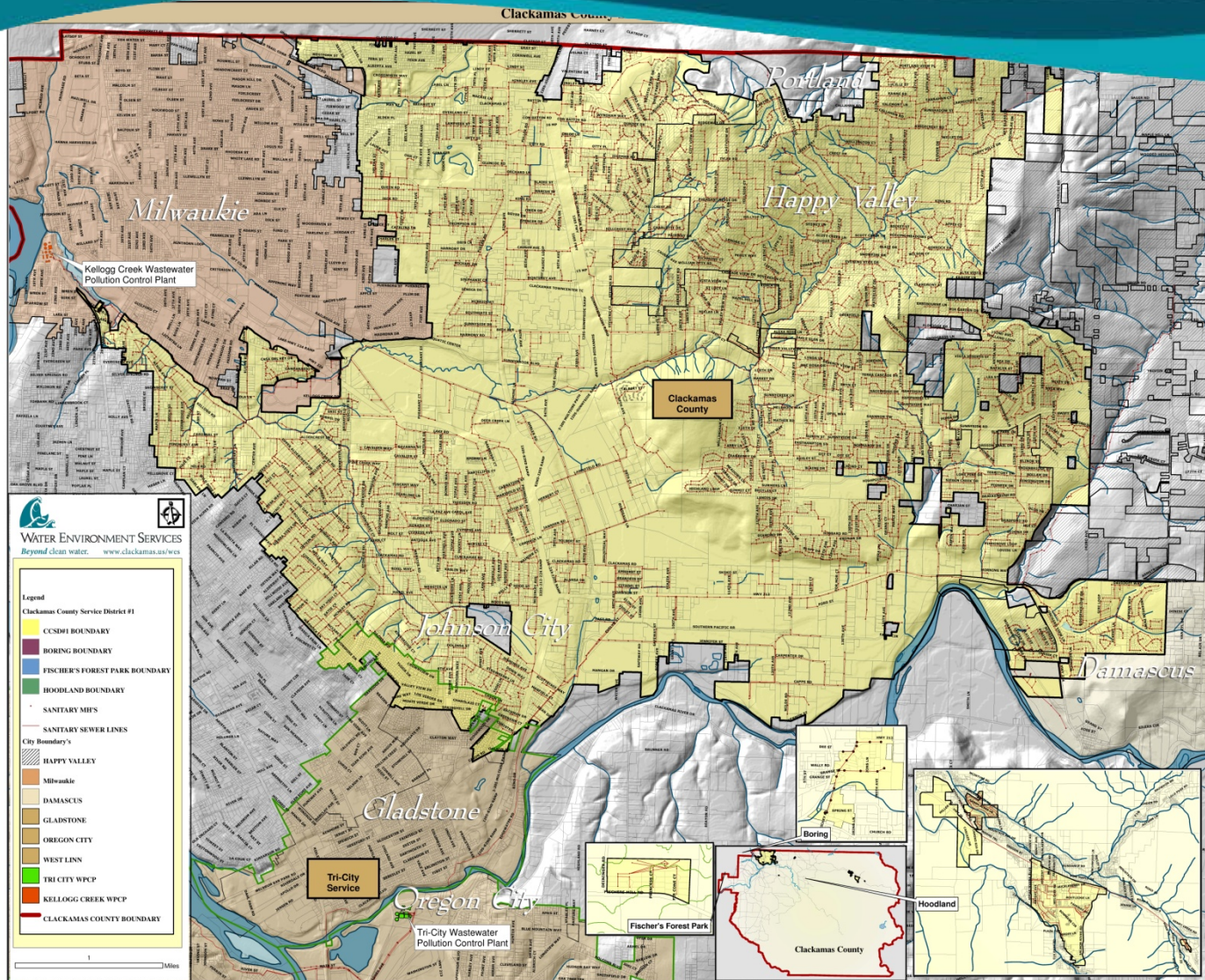


What we do

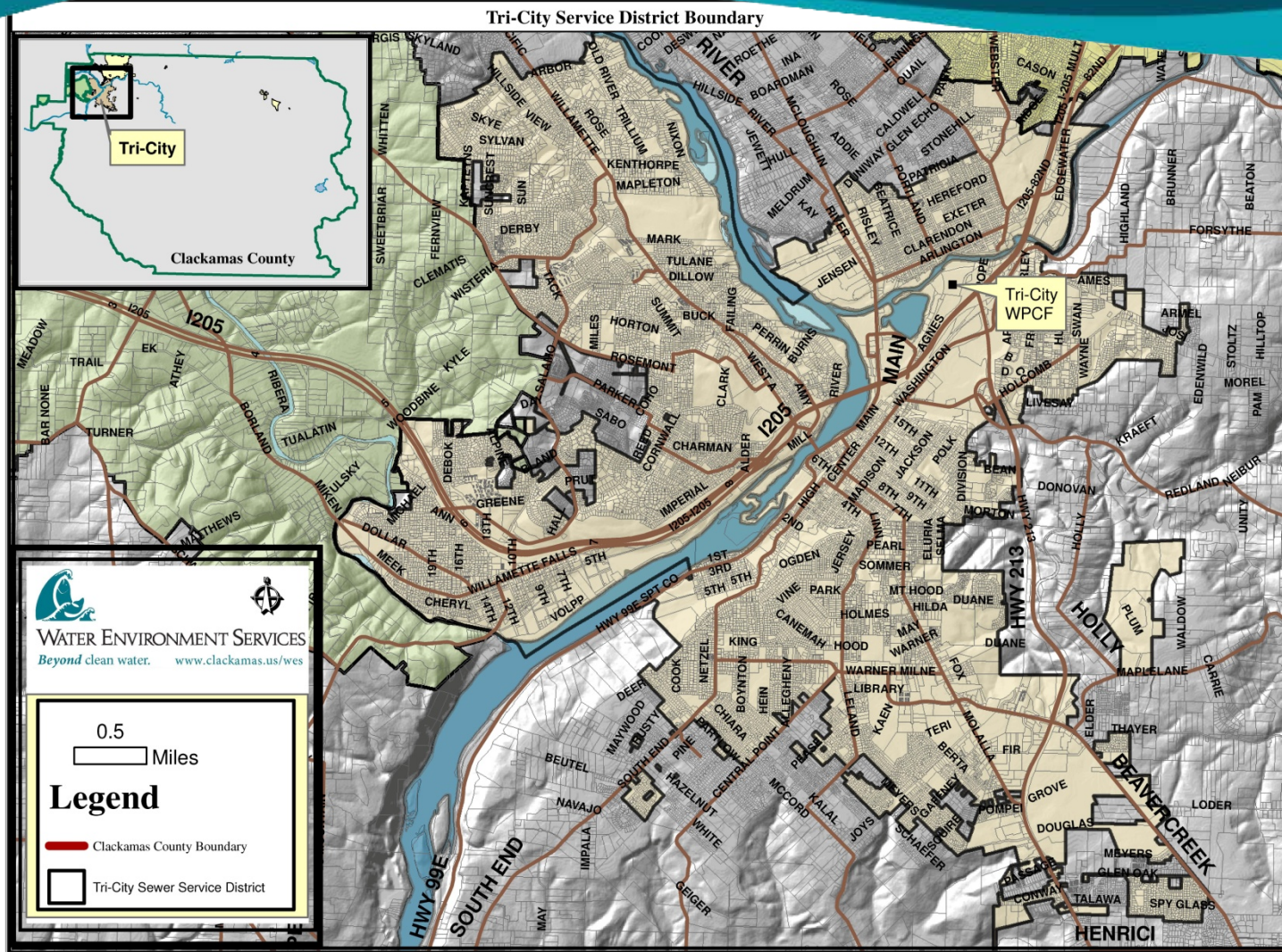


Water Environment Services (WES) provides wastewater collection and treatment services, stormwater management, and stream enhancement projects for regions within Clackamas County

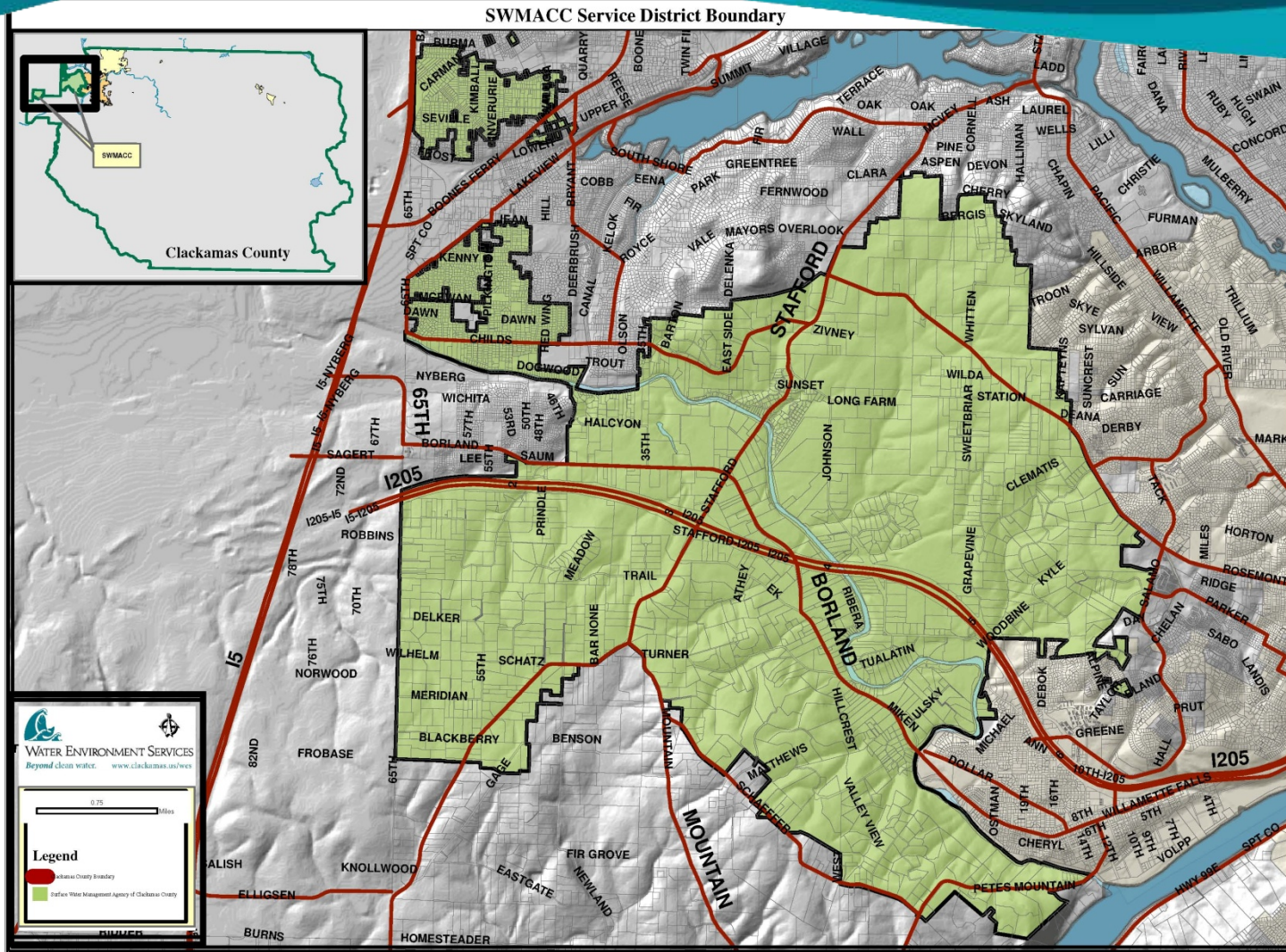
Where we work Clackamas County Service District No. 1



Where we work Tri-City Service District #4



Where we work Surface Water Management Agency of Clackamas County



Tri-City WPCP - MBR



Tri-City WPCP – Green roof



WES Surface Water Program

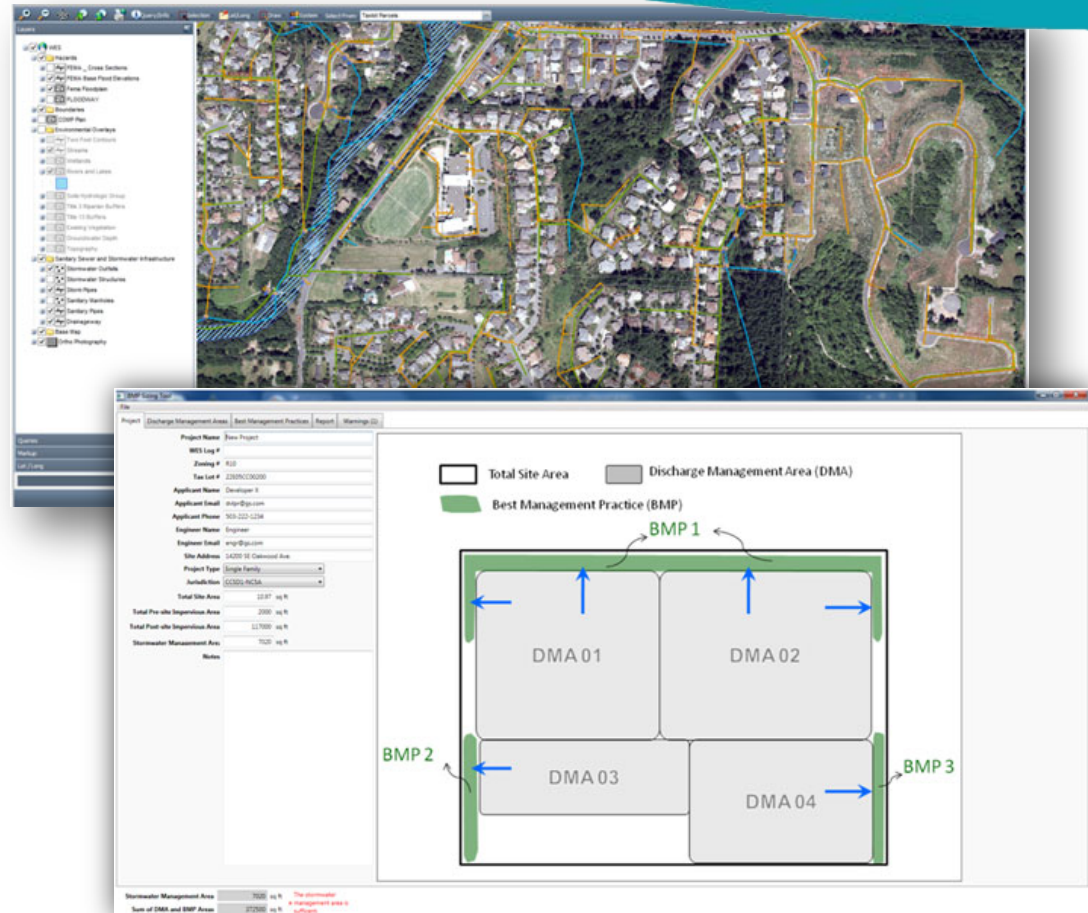
- Conducts water quality monitoring in district watersheds
- Drafts and implements stormwater management design standards for development
- Supports community organizations & non-profits engaged in watershed restoration and water quality enhancement (*RiverHealth Stewardship Program*)
- Maintains Watershed Action Plans for priority district streams
- Implements restoration and maintenance projects



Kellogg Creek

WES Surface Water Program

- Exploring options for developers with online stormwater management tools to support LIDA - GIS Planning Tool; BMP Sizing Tool
- Retrofitting and maintenance of detention ponds and other stormwater facilities



Looking forward

- Master planning guides phased capacity management for districts through 2030.
- *Who are the ratepayers in 2030?*



Looking forward

- Master plans guide phased capacity management for the districts through 2030
- *Who are the ratepayers in 2030?*



Watershed Health Education Program

- A priority of the CCSD # 1 Watershed Action Plans
- To engage, inspire and educate students and the community to protect and restore streams and improve watershed health
- Provides curriculum, resources, partnerships, supplies and field experiences
- K-12 and beyond
- Flexible



Watershed Health Education Program

→ Partnerships matter

- Watershed councils
- Consortiums
- Community groups
- Intergovernmental agencies
- Formal and non-formal educators
- Consultants
- Scientists, engineers and other experts



Watershed Health Education Program

- Provides curriculum, resources, partnerships, supplies and field experiences
- Supports STEM educational goals
- Features hands-on, inquiry-based learning
- Student data is authentic
- Students contribute to WES surface water projects



Watershed Health Education Program

→ Projects

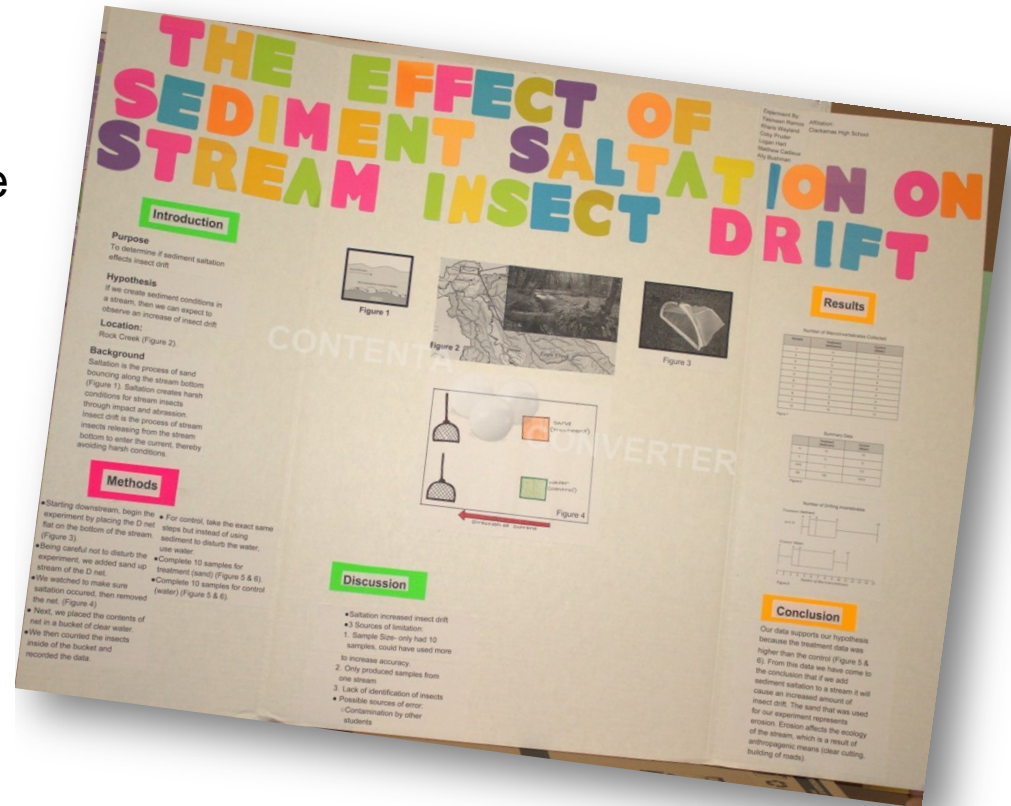
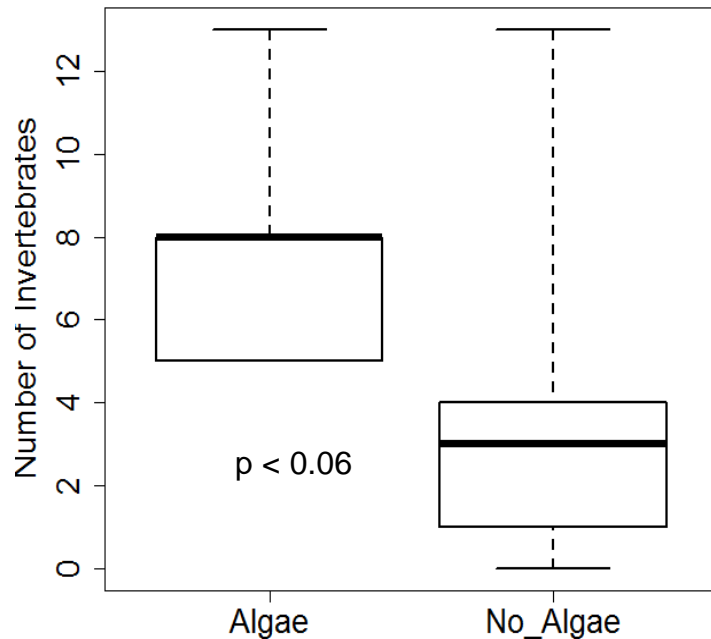
- Water quality testing
- Native and invasive plant identification
- Riparian/wetland restorations and enhancements
- Macroinvertebrate collection and data analysis
- Salmon dissection and carcass toss
- NEW rain garden sizing and installation



Watershed Health Education Program

→ Experiments & Analysis

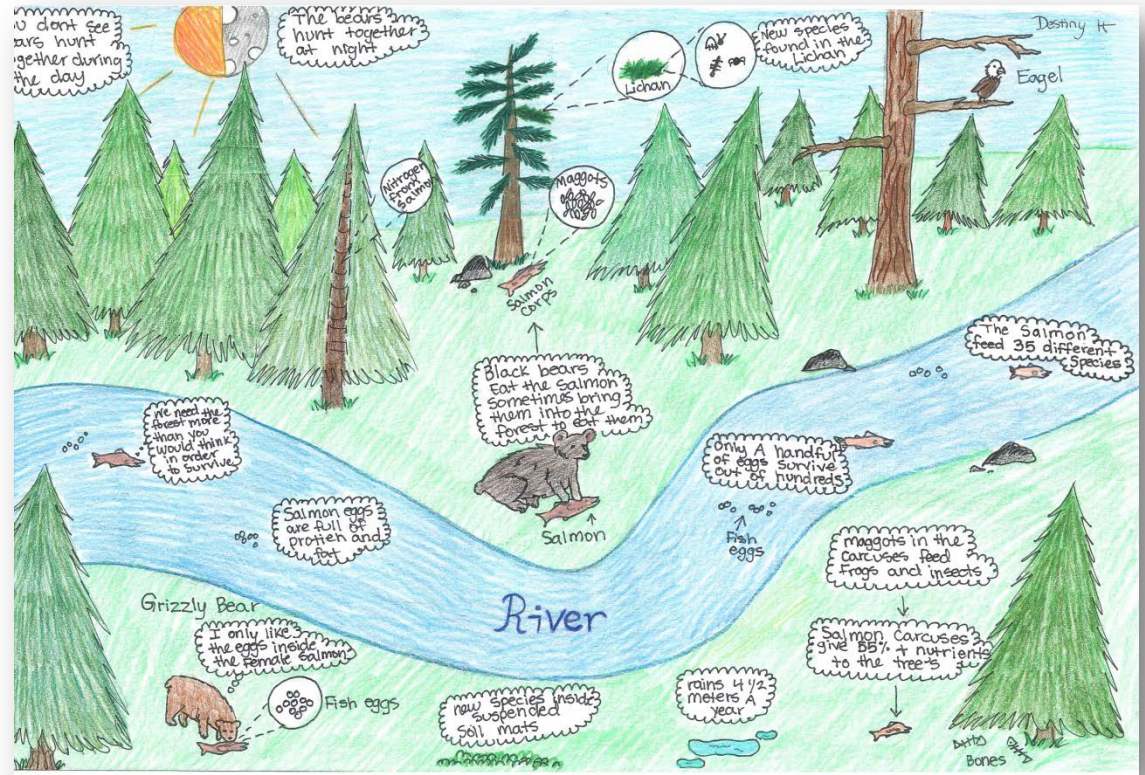
Rocks with Algae vs No Algae



Watershed Health Education Program

→ Student work

- Artwork
- Scientific papers
- Journals
- Posters
- Videos



Watershed Health Education Program

→ Student PSAs integrate watershed health science, imagination and video production techniques with the help of WES and the Clackamas County Government Channel winning a national* award along the way

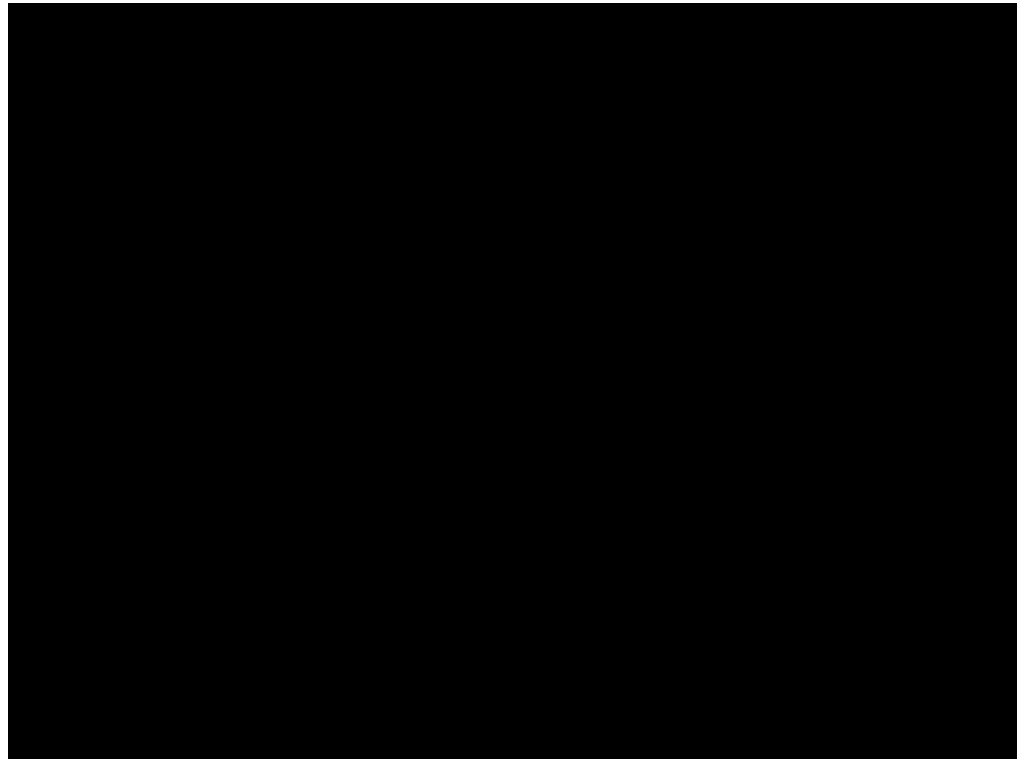
(*National Association of Telecommunications Officers and Advisors)



Watershed Health Education Program

→ Student PSAs integrate watershed health science, imagination and video production techniques with the help of WES and the Clackamas County Government Channel winning a national* award along the way

(*National Association of Telecommunications Officers and Advisors)



Watershed Health Education Program

→ Student-to-student education

- Interactive displays
- Presentations
- Storytelling
- Community events
- Multisensory experiences in local waterways



Watershed Health Education Program

→ Clackamas Water Education Team (CWET), a consortium of water-related agencies

- Celebrating Water Event
- Teacher Workshop
- Activity kits
- Mobile demonstration rain garden
- Peer-to-peer support



Watershed Health Education Program

- Wastewater is part of the water cycle
- Separate sanitary sewer system
- Wastewater treatment tours
 - Conventional Activated Sludge
 - Membrane Bioreactor
 - Lab



Watershed Health Education Program

→ “Students today, rate payers tomorrow” knowledge expectations

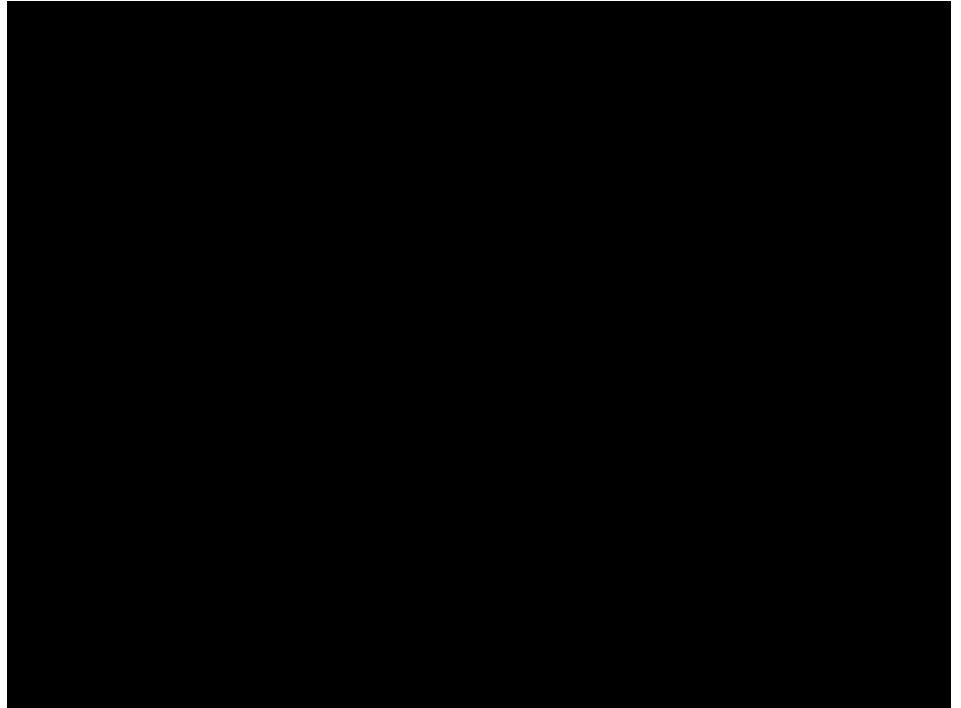
- Water cycle
- Human impacts on water quality
- Surface water issues
- Wastewater treatment
- Stewardship
- Future vocations
- Make a difference



Watershed Health Education Program

→ “Students today, rate payers tomorrow” knowledge expectations

- Water cycle
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Watershed Health Education Program

→ In its 5th year, WHEP reaches 2,000 students and their families

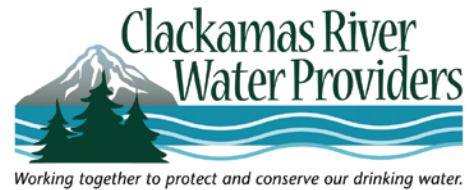
→ Benefits...

- WES
- Schools
- Students
- Public
- Watersheds
- America's waters
- Earth's water supply



Watershed Health Education Program

→ Thank you to our partners



**NORTH CLACKAMAS
PARKS & RECREATION DISTRICT**

